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ABSTRACT

Student attitudes toward the physical environment of a school opened in 1980 are compared to student attitudes toward two older schools: one constructed in 1923, the other in 1936. The control group consisted of all the 119 pupils in grades 2, 3, and 4 in the 1936-era school. The experimental group consisted of all the 96 pupils in grades 2, 3, and 4 in the 1923-constructed building who were later transferred to the new school. Pupil pre-test and post-test scores on the "Our School Building Attitude Inventory" served as the dependent variable. The independent variables were the physical facilities in the three school buildings, and students' sex, race, and socioeconomic status. Analyses of covariance and variance were used to examine the variables. The main finding of the study was that pupils housed in a modern school building have significantly more positive attitudes toward their school building than do pupils housed in an old building. Race and socioeconomic status had no effect on pupil attitudes toward school buildings, though females in the control group scored significantly higher than males in both the pre-test and the post-test. Six pages of selected references accompany the report. The appendices contain the attitude inventory and a five-point rating scale of 33 characteristics of the 3 schools. (Author/MLF)

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A COMPARATIVE STUDY OF PUPIL ATTITUDES TOWARD NEW AND OLD SCHOOL BUILDINGS

Dr. Tak Cheung Chan

1982

EA 015 130

The School District of Greenville County
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A COMPARATIVE STUDY OF PUPIL ATTITUDES TOWARD NEW AND OLD SCHOOL BUILDINGS

"People tend to perform or behave in a manner that is consistent with their currently dominant attitudes" (Cleaning Management, August, 1981). Positive pupil attitudes produce positive pupil performance and behavior; negative pupil attitudes create learning problems and misconduct. (Alvord, 1971; Marcus & Sheehan, 1978; Tatsuoka & others, 1978; Parkway, 1981; Abram 1980; Raivetz, 1980). Pupil attitudes, as described by Combs (1982), are "powerful sources of motivation."

On the other hand, studies (Artinian, 1970; McGuffey, 1972; Cramer, 1976) have indicated more positive pupil attitudes toward physical environment in a better facilitated school building. Therefore, an investigation of the impact of school building on pupil attitudes is justified by the fact that changes in pupil attitudes could create the most constructive and long-lasting changes in pupil behavior and level of performance.

A review of literature indicated that few studies have been conducted that were concerned with the effect of school's physical environment on the attitudes of pupils housed in these schools. Therefore, this study should contribute to the knowledge in this field.

PURPOSE OF RESEARCH

The purpose of this study was to compare pupil attitudes toward new and old school buildings. The new school building in this study was Greenview Elementary School building, which was opened in August, 1980. The old school buildings were Dunean Elementary School building

and West Gantt Elementary School building which were constructed in 1923 and 1936 respectively. The specific purpose of this study was to compare the attitudes of second, third, and fourth graders toward the physical environment of Greenview Elementary School, Dunean Elementary School and West Gantt Elementary School.

PROBLEM STATEMENT

Do pupil attitudes toward a new school building differ significantly from pupil attitudes toward an old school building?

1. How are pupil attitudes toward a new school building compared with pupil attitudes toward an old school building?
2. How are the attitudes of male pupils compared with the attitudes of female pupils toward new and old school buildings?
3. How are the attitudes of white pupils compared with the attitudes of non-white pupils toward new and old school buildings?
4. How are the attitudes of the paid school lunch participants compared with the attitudes of the free/reduced price school lunch participants toward new and old school buildings?

REVIEW OF SELECTED RELATED LITERATURE

This section reports only on studies in relation to pupil attitudes toward their physical environment. Literature on pupil attitudes toward other areas of their learning situation is not the concern of this study and is listed in REFERENCES as background information for readers' interest.

Pupil attitudes toward school buildings of different design have been reported by many researchers.

In their study of fourth, fifth and sixth graders in underground educational facility, Cooper and Ivey (1964) found no data to support the hypothesis that attending an underground school caused adverse effects on pupil attitude toward school.

Pupil attitudes toward school in open classrooms and in traditional classrooms have been investigated at various levels (Townsend, 1971; Beckley, 1972; Lovin, 1972; Scott, 1973; Jolley, 1974; Damels, 1974; Gron, 1976; Traub, Weiss & Fisher, 1977; Griswold, 1981). Most of the research results indicated more positive pupil attitudes toward schools of open classroom setting.

Pupil attitudes toward improved physical environment of school buildings have been reported by the following researchers:

In his study of 384 dental students, Myrick (1965) surveyed student attitudes in five old and four new dental buildings. Newer buildings were found to better meet the students' physical and psychological needs than were the older buildings.

Artinian (1970) studied the attitudes of 800 pupils in 32 elementary schools which were built between 1950 and 1968 in Montreal, Canada. Data indicated that pupil attitudes toward school and classrooms were more positive when pupils were highly satisfied with the environmental factors.

McGuffey (1972) investigated pupil attitudes at the elementary level. A comparison was made of pupil attitudes toward new fully carpeted, air-conditioned school buildings and older existing ones. Results of the McGuffey study showed significant differences in favor of the new, air-conditioned, fully carpeted schools.

Cramer (1976) examined the relationship between space density and pupil attitudes toward their school building in Georgia. Three school buildings were involved in his study: an old, dilapidated building, a renovated old building and a relatively new building. Results indicated that pupil attitudes were significantly lower for the old, dilapidated building which had a comparatively larger amount of space per pupil. Cramer concluded that given the limits of his study, the quality of space might be more important than the amount of space.

Facts documented by these researches, though not conclusive, appear to support the following postulates:

(1) Man is under the influence of his physical environment.

(2) Pupil attitudes toward the school's physical environment are influenced by the design condition and quality of the school building in which he/she is housed.

METHODS AND PROCEDURES

Research Design

The design for this study was selected for its appropriateness to the natural setting of the population under investigation. It was a non-equivalent control group design of a quasi-experimental nature. Full experimental control was lacking inasmuch as the researcher had little control over the scheduling of experimental stimuli and the opportunity to randomize subjects.

Population

The population was divided into the control group and the experimental group. The control group consisted of all the 119 pupils in Grades 2, 3 and 4 in West Gantt Elementary school. The experimental

group consisted of all the 96 pupils in Grades 2, 3 and 4 in Dunean Elementary School. The experimental group was later transferred to a better facilitated environment in Greenview Elementary school while the control group was exposed to the same old dilapidated environment in West Gantt Elementary school when both the pre-test and the post-test were conduted.

Variables

The dependent variable was the pupil pre-test and post-test scores on the "Our School Building Attitude Inventory" obtained by testing both the control group and the experimental group.

The independent variable of main concern was the physical facilities in the three school buildings. Other independent variables were sex of pupils, race of pupils and socioeconomic status of pipils involved in this study.

Sources of Data

The three school buildings involved in this study represented two types pf school buildings. Dunean Elementary School and West Gantt Elementary School were in the same old and dilapidated condition whereas Greenview elmeentary School is a new school building equipped with modern facilities. A list of characteristics about the physical environment of these three school buildings has been included for the readers reference (please see Appendix B). School building data were collected by the researcher through visits to these school buildings.

Measures of pupil attitudes were based on pupil scores on the "Our School Building Attitude Inventory." A pre-test was administered to both the control group and the experimental group in March, 1980. A post-test was administered to the control group in late May, 1980.

A post-test on the experimental group was administered in December, 1980, after the group had been exposed to a better facilitated physical environment.

Post-tests on the control group and the experimental group were administered at different times because of compliance with the Greenville County School District published schedule over which the researcher had no control. Post-test on the experimental group was administered four months after the experimental group was exposed to the new environment. This arrangement made it possible to reduce the degree of pupils' novelties to new school building which, would influence their scores on the attitude inventory.

Data concerning the pupils' sex, race and SES were obtained from school records.

Operational Definitions

Pupil Attitudes Toward School Building - Pupil scores on "Our School Building Attitude Inventory."

"Our School Building Attitude Inventory" (OSBAI) - An instrument devised by Dr. Carroll W. McGuffey of the University of Georgia to measure the extent of pupil's positive feeling about a school building. (Please see Appendix A).

Sex - Sex was identified by either male or female.

Race - Race was identified by either white or non-white.

Socioeconomic Status - Socioeconomic status was identified by either (1) paid school lunch participation or (2) free or reduced-price school lunch participation. Pupil's free or reduced-price school lunch participation was an indication of low socioeconomic status.

Old School Building - Old, dilapidated school building with no air conditioning, no fluorescent lighting, no carpeting and no pastel wall-coloring.

New School Building - Modern school building with air-conditioning, fluorescent lighting, carpeting and pastel wall-coloring.

Pastel Color - The kind of color to include lighter shades of blue, yellow, orange, red and green, but exclude black, grey and dark shades of brown, green, blue and red.

Statistical Treatment

The experimental design in this study is considered to be a non-equivalent control group design of a quasi-experimental nature since full experimental control was not possible because of the inability to randomize subjects. It involved an experimental group and a control group with no pre-experimental sampling equivalence. In an effort to reduce the lack of experimental control the total target population was included in the study.

Some threats to external validity such as interactions of the treatment with testing, selection and reaction by pupils were reduced by the testing procedures. Also the use of natural groups, use of the total target population and the absence of freedom to volunteer amoung pupils reduced further the threat to external validity.

Teachers' ages, years of teaching experience and years of college education in both the control group and the experimental group were observed. No significant difference was found in between the two groups. Thus, variations in pupil attitudes between the two groups due to direct or indirect teacher influence was reduced.

Analysis of covariance was used to compare the post-test scores of pupil attitudes in the control group and those in the experimental group with their corresponding pre-test scores as covariates. A significance level of .05 was used .

Analyses of variance were used to examine sex differences, racial differences and socioeconomic differences in pupil attitude scores with a significance level of .05.

FINDINGS

When the post-test scores of the control group and the experimental group had been statistically adjusted by their corresponding pre-test scores, pupils in the experimental group scored averagely 19 points (on a 55 point scale) higher than pupils in the control group. The difference in attitude scores was indicated by an F-Valve of 19.71 which was significant at the .0001 level. (Please see Table I)

TABLE I
Analysis of Covariance
(Control Group vs Experimental Group)
Summary of Major Statistics

Type	Number of Cases	Mean Scores (Unadjusted)		F-Value
		Pre-test (Covariates)	Post-test	
1	119	27.61	25.10	19.71*
2	96	27.79	45.87	

Type 1 - Control Group

Type 2 - Experimental Group

*Significant at .0001 level.

For better understanding of the attitude change in both the control group and the experimental group, all pre-test and post-test scores were plotted out for the readers' reference (please see Tables II & II).

TABLE II - ANALYSES OF COVARIANCE (GRAPHIC) CONTROL GROUP)

PLOT OF POST_S*PRE_S LEGEND: A = 1 OBS, B = 2 OBS, ETC.

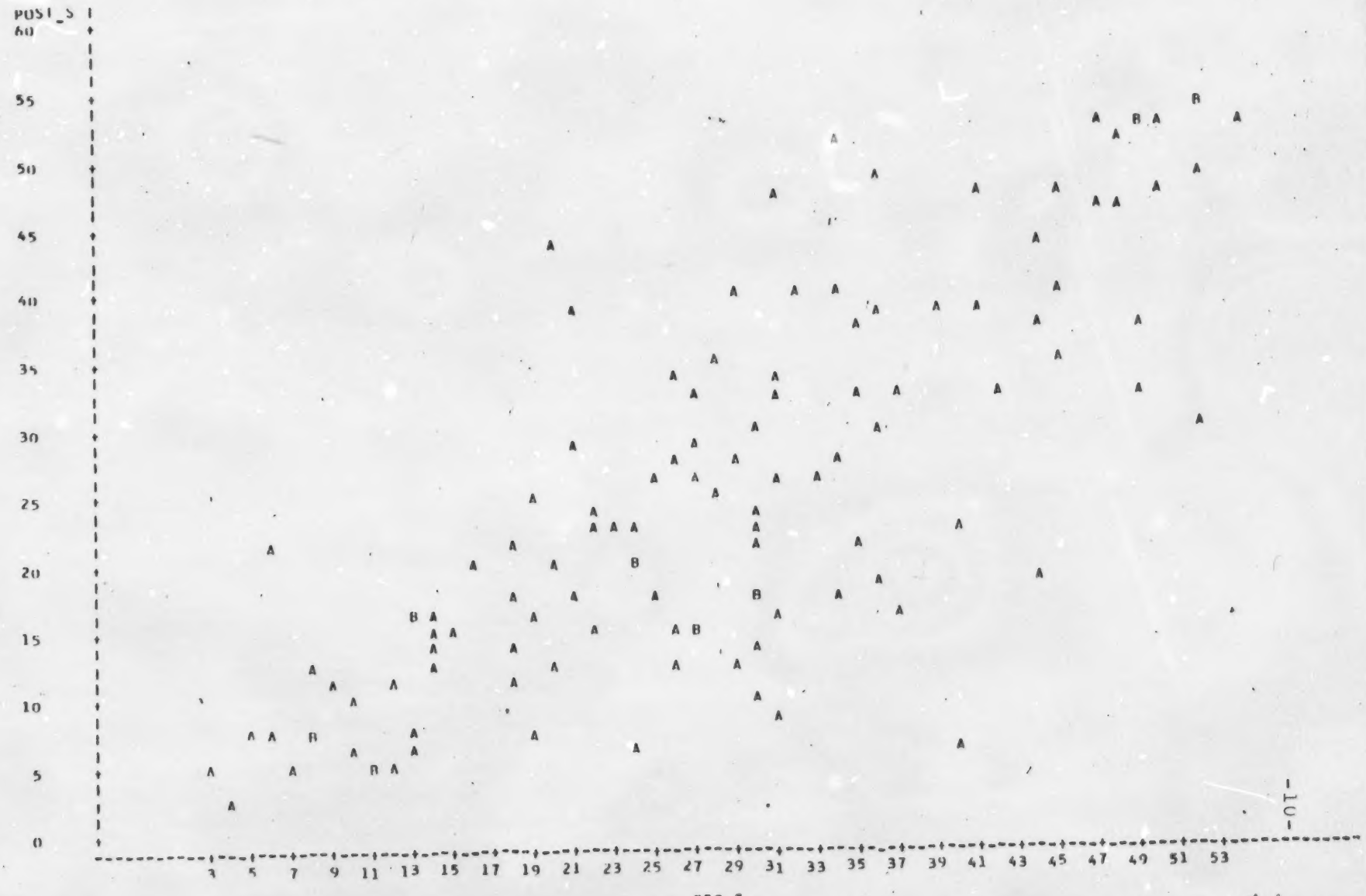
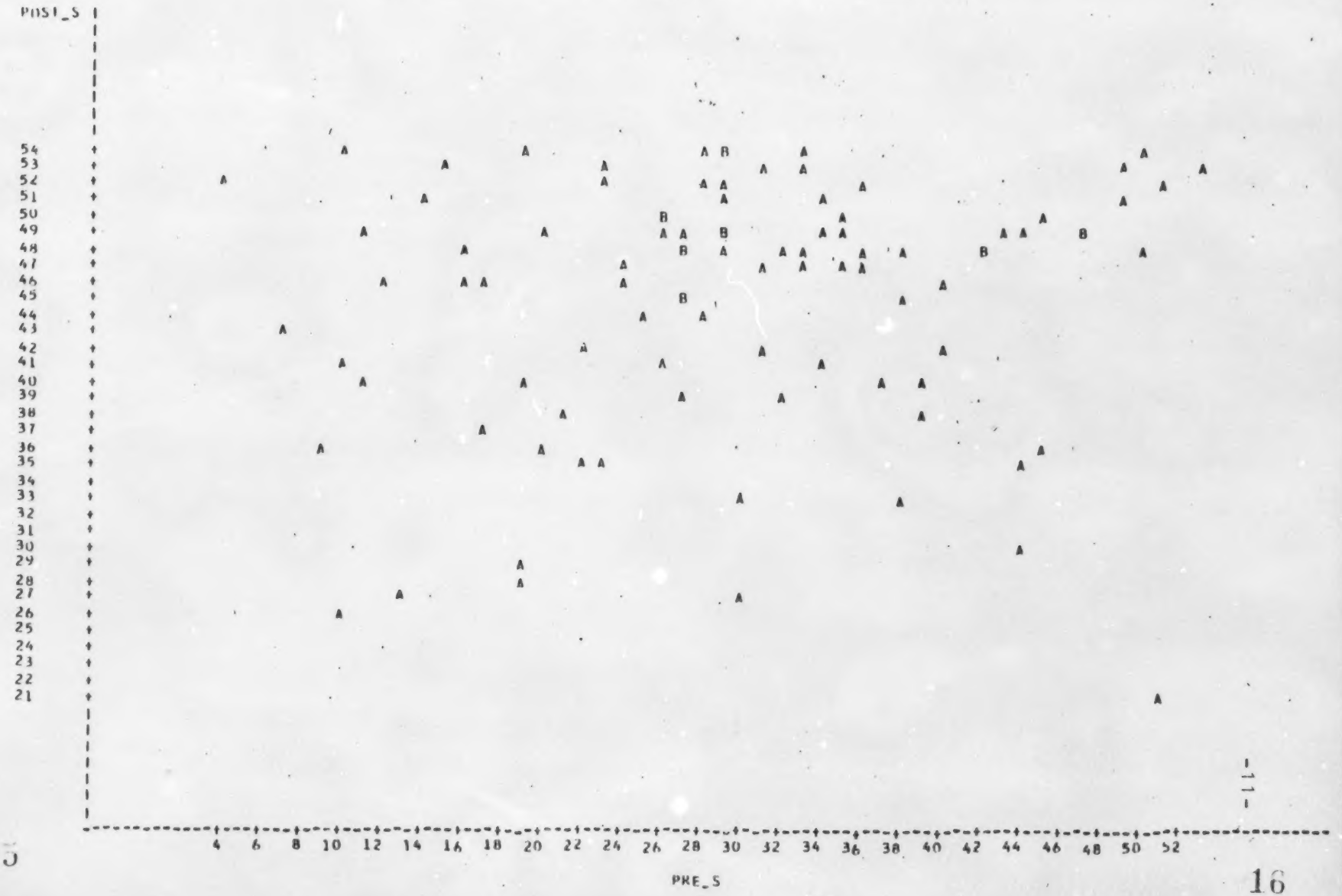


TABLE III – ANALYSES OF COVARIANCE (GRAPHIC : EXPERIMENTAL GROUP)



The effect of sex, race and socioeconomic status on pupil attitudes was examined in the pre-test scores and the post-test scores of both the control group and the experimental group. Results of statistical analyses indicated that race and socioeconomic status had no effect on pupil attitudes toward school buildings. However, female pupils in the control group scored significantly higher than male pupils in both pre-test and post-test. No evidence was found in favor of any sex in all tests of the experimental group. All observations were made at .05 level of significance. (See Table IV)

TABLE IV
Analyses of Variance

(Male vs Female; White vs Non-White; Paid lunch participants vs Free or reduced-price lunch participants)
Summary of Major Statistics by Groups by Test

Type	Control Group			Experimental Group		
	Number of Cases	F-Value Pre-test	Post-test	Number or Cases	F-Value Pre-test	Post-test
1	52	6.44[A]	6.47[B]	47	1.61	0.03
2	67			49		
3	71	0.01	0.48	77	0.23	0.20
4	48			19		
5	70	0.14	1.59	48	0.03	1.98
6	49			42		

Type 1 - Male
Type 2 - Female
Type 3 - White
Type 4- Non-White
Type 5- Paid lunch participants
Type 6- Free or reduced-price lunch participants
A- Significant at .01 level in favor of females.
B- Significant at .01 level in favor of females.

CONCLUSIONS

This study has examined pupil attitudes toward school buildings in which they were housed. Specifically, this study has determined the impact of physical environment on the attitudes of second, third and fourth graders in Dunean Elementary School, West Gantt Elementary School and Greenview Elementary School in Greenville, South Carolina.

Question 1

How are pupil attitudes toward a new school building compared with pupil attitudes toward an old school building?

Statistics showed that pupil attitudes toward a new school building were significantly more positive than pupil attitudes toward an old school building. The observed difference was significant at .001 level.

Question 2

How are the attitudes of male pupils compared with the attitudes of female pupils toward new and old school buildings?

The attitudes of male pupils were compared with the attitudes of female pupils toward new and old school buildings. Statistics showed that in West Gantt Elementary School (old) female pupils scored significantly higher in both the pre-test and the post test than male pupils. However, no significant difference was found in the same comparisons made in Dunean Elementary School (old) and Greenview Elementary School (new). All observations were made at .05 level of significance.

QUESTION 3

How are the attitudes of white pupils compared with the attitudes of non-white pupils toward new and old school buildings?

The attitudes of white pupils were compared with the attitudes of non-white pupils toward new and old school buildings. No significant difference was found in all comparisons. All observations were made at .05 level.

Question 4

How are the attitudes of the paid school lunch participants compared with the attitudes of the free/reduced-price school lunch participants toward new and old school buildings?

The attitudes of the paid school lunch participants were compared with the attitudes of the free/reduced-price school lunch participants toward new and old school buildings. Statistics did not show any significant difference at .05 level in all pre-test score and post-test score comparisions.

In summary, the findings cited above have supported a significant impact of physical environment on pupil attitudes. Pupils housed in a modern school building have significantly more positive attitudes toward their school building than pupils housed in an old dilapidated school building have toward theirs.

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APPENDIX A

Our School Building Attitude Inventory

BUREAU OF EDUCATIONAL STUDIES AND FIELD SERVICES

University of Georgia

Procedure for the Analysis of the Our School Building Attitude Inventory

The Our School Building Attitude Inventory is composed of 55 statements which are designed to elicit simple yes or no responses from students regarding their thoughts and feelings about their school's physical environment.

The inventory is divided into 28 positive and 27 negative statements arranged through the use of a table of random numbers. Responses of yes to positive statements are weighted "1". Similarly, responses of no to negative statements are weighted "1". Responses of no to positive statements and yes to negative statements are weighted "0".

The numbers of positive and negative statements are listed below.

Positive	Negative
1, 4, 5, 6, 7, 8,	2, 3, 9, 10, 12, 13,
11, 14, 16, 17, 18,	15, 21, 22, 24, 25,
19, 20, 23, 26, 27,	25, 26, 31, 37, 38,
28, 29, 30, 32, 33,	41, 42, 43, 44, 45,
34, 39, 40, 49, 52,	46, 47, 48, 50, 51,
54, 55	53

Maximum Score: 55 Minimum Score: 0

Instructions for "Our School Building Attitude Inventory"

I. Use the multipurpose answer form for all your responses. Do not put answers on inventory.

II. Fill in the following on the multipurpose form (at the top in the blank area).

1. Name
2. School (Building)
3. Grade
4. Race and Sex
5. Date
6. Supervision Number

III. Read instructions on inventory, record answers on answer sheet, use space A for Yes answer, use space B for No answer (do not mark in space C, D, E, or F).

IV. Please be careful with the answer sheets - do not fold - no extra marks.

V. Your responses are part of a research project on school buildings. Thank you.

Our School Building Attitude Inventory

School_____ _____Teacher_____

Grade_____Sex_____Race_____Date_____

INSTRUCTIONS: Please circle Yes or No in response to each of the items. As you answer each statement, think of the building and express your opinion as it applies to the building only.

Yes No 1. My room is just the right size.

Yes No 2. My chair is comfortable.

Yes No 3. I need a better place to keep my books and things at school.

Yes No 4. This building is really a good place to be.

Yes No 5. The lighting helps me to see better.

Yes No 6. This building makes it easier for me to study.

Yes No 7. This building makes my friends happy.

Yes No 8. I like going to school in this building.

Yes No 9. The building makes me feel restless.

Yes No 10. This building could cause me to get hurt easily.

Yes No 11. I can see to read my book and other materials easily.

Yes No 12. I'd like to tear this building down.

Yes No 13. The building is unpleasant most of the time.

Yes No 14. My classroom is bright and cheery.

Yes No 15. There is an awful lot of noise in this building

Yes No 16. I have a good place to put my books and things at school.

Yes No 17. I like to play on the school grounds.

Yes No 18. I go to school in a nice room.

Yes No 19. This school is quiet.

Yes No 20. The colors of the walls are bright and pretty.

Yes No 21. This building is too dark and ugly.

Yes No 22. I feel lost in this building.

Yes No 23. I like to play at this school.

Yes No 24. This school building is too hot.

Yes No 25. This whole building is pretty bad.

Yes No 26. This is the best school building I have ever seen.

Yes No 27. I like to come into this building.

Yes No 28. This building is beautiful.

Yes No 29. My classroom is a cozy place to be.

Yes No 30. The building gives me a good feeling.

Yes No 31. This building makes me feel sick at times.

Yes No 32. The building is very comfortable.

Yes No 33. My classroom is a clean place.

Yes No 34. This building is friendly and inviting.

Yes No 35. I get tired and sleepy in this building.

Yes No 36. The floor is too cold.

Yes No 37. This building is really no good.

Yes No 38. Writing on the board is hard to see.

Yes No 39. This building is great in every way.

Yes No 40. The school building makes me feel at home.

Yes No 41. All the desks are uncomfortable.

Yes No 42. I could learn better if the school was prettier.

Yes No 43. I'd like to have more comfortable desks.

Yes No 44. I dislike this building.

Yes No 45. I feel too crowded in my classroom.

Yes No 46. This building is scary sometimes.

Yes No 47. The bathroom is too far away.

Yes No 48. This building makes me feel scared sometimes.

Yes No 49. I like this building.

Yes No 50. The lighting gives me a headache.

Yes No 51. This building is like a jail.

Yes No 52. This school building is a comfortable place to be.

Yes No 53. This building makes it hard for me to learn anything.

Yes No 54. This school building is the most comfortable place to be.

Yes No 55. I feel this building has more good points than bad points.

April 29, 1971
Revised, May 18, 1971
C. W. McGuffey

APPENDIX B

Physical Conditions of Schools in Study

Physical Conditions of Schools in Study

Characteristics	RATING		
	Dunean	West Gantt	Greenview
Outlook	2	3	5
General layout	3	3	5
Exterior walls	3	3	5
Interior walls	2	3	5
Windows	2	3	5
Roofs	2	3	5
Floor covering	2	2	5
Lighting	2	3	5
Ceiling	2	3	5
Heating	2	2	5
Cooling	1	1	5
Ventilation	2	2	5
Electrical system	2	3	5
Plumbing system	2	3	5
P.A. system	1	1	5
Intrusion alarm	1	1	5
Fire protection	3	3	5
Internal ETV circuit	1	1	5
Use of Color	2	2	5
Furniture & Equipment	2	3	5
Art Room	2	2	5
Music Room	1	1	5
Media Center	2	3	5
Resource Room	1	1	5
Conference Room	1	1	5
Kitchen & Cafetorium	2	3	5
Commons Area	1	1	5
P.E. Facilities	2	2	5
General storage	2	2	5
Health Room	2	3	5
Toilet Facilities	2	3	5
State of Maintenance	2	2	5
Cleanliness	2	2	5

Rating Scale: 1 = Missing
2 = Inadequate
3 = Marginal
4 = Adequate
5 = Superior